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April 6, 2001

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

**By Hand Delivery**

Ms. Magalie Roman Salas, Secretary  
Federal Communications Commission  
The Portals, 445 12<sup>th</sup> Street, S.W.  
Room TW-B204  
Washington, D.C. 20554

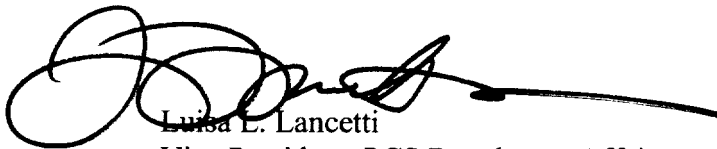
**Re: Written Ex Parte Notification**  
*Revision of Part 15 of the Commission's Rules Regarding*  
*Ultra-Wideband Transmission Systems, ET Docket No. 98-153*  
*UWB Interference to CDMA PCS Networks*

Dear Ms. Salas:

Sprint Spectrum L.P., d/b/a Sprint PCS, pursuant to Section 1.1206 of the Commission's rules, hereby submits an original and four copies of a notification of a written *ex parte* contact. Please associate this letter with the file in the above-captioned proceeding.

Please contact me should you have any questions concerning the foregoing.

Sincerely yours,



Luisa L. Lancetti  
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Mr. Bruce A. Franca, Acting Chief  
Office of Engineering and Technology  
Federal Communications Commission  
The Portals, 445 12<sup>th</sup> Street, S.W.  
Washington, D.C. 20554

**Re:    *Written Ex Parte Presentation***  
*Revision of Part 15 of the Commission's Rules Regarding*  
*Ultra-Wideband Transmission Systems, ET Docket No. 98-153*  
***UWB Interference to CDMA PCS Networks***

Dear Mr. Franca:

Sprint Spectrum L.P., d/b/a Sprint PCS ("Sprint PCS"), below responds to the proposal that Fantasma Networks made earlier this week. The Commission cannot grant the relief Fantasma seeks because the record evidence is uncontraverted that UWB devices would cause harmful interference to PCS licensees.

In an *ex parte* dated April 2, 2000, Fantasma recommended that the Commission bifurcate this proceeding between GPS frequencies and non-GPS frequencies and that it "move now to authorize UWB technologies that do not operate on GPS frequencies."<sup>1</sup> According to Fantasma, there is "ample record support for fast Commission action on non-GPS UWB technology."<sup>2</sup> In taking this position, however, Fantasma ignores completely the data and studies that Sprint PCS submitted documenting that that UWB de-

<sup>1</sup> Letter from Henry Goldberg, Attorney for Fantasma Networks, to Magalie Salas, FCC Secretary, Docket No. 98-153, at 1 (April 2, 2001) ("Fantasma *Ex Parte*"). Fantasma submitted its *ex parte* in response to an *ex parte* submitted by numerous members of industry on March 27, 2001. Sprint did not join this industry letter for several reasons, but primarily because the letter is based on fears of "potential adverse impact." In the case of PCS CDMA networks, the risk of UWB interference is documented, real, and significant. On the existing record, the FCC cannot approve operation of UWB devices in the PCS spectrum, and no additional notice is required to reject these requests for modification of Part 15 as applied to the PCS spectrum band.

<sup>2</sup> Fantasma *Ex Parte* at 3.

vices will cause harmful interference to mobile services (CMRS) networks that use CDMA technology — data and studies that Fantasma has never challenged. Thus, based on the existing record, the Commission cannot approve use of UWB devices in the 1.9 GHz PCS band and any other band that will be used for 3G services (since all 3G-based networks will be using CDMA, whether cdma2000 or W-CDMA).<sup>3</sup>

Last year Sprint PCS and Time Domain Corporation conducted joint tests to determine the impact that UWB devices may have on PCS CDMA networks. On September 12, 2000, Sprint PCS and Time Domain jointly submitted a summary of the test results and an impact analysis model that Telcordia Technologies prepared.<sup>4</sup> The data confirmed that UWB devices will cause harmful interference to PCS CDMA networks even at the more stringent  $-53.2$  dBm/MHz average power level discussed in the *NPRM*.<sup>5</sup> One effect of UWB interference was the loss of existing PCS network capacity. At the  $-53.2$  dBm/MHz emissions level, a fair signal ( $-90$  dBm RSSI) PCS handset will ask for 8% more power when exposed to a UWB device two meters away. A weaker signal ( $-100$  dBm RSSI) handset will demand 50% more power. The network capacity loss at a base station could be considerable if several PCS customers are near active UWB devices.<sup>6</sup>

A second and separate effect of UWB interference is call blocking — namely, a PCS call will drop or a call attempt will be blocked if the handset is too close to an active UWB device. At the  $-53.2$  dBm/MHz emission level suggested in the *NPRM* (and assuming that between one in twenty and one in five PCS customers are within three meters of an active UWB device), the model demonstrates that the resulting additional blocking percentages are from 1.2% to 4.8% respectively. At two meters, the additional blocking

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<sup>3</sup> Sprint paid the federal government significant sums (over \$3 billion) for its exclusive PCS licenses. Given this exclusive license grant, FCC authorization of new uses of this same spectrum would constitute a breach of contract and an unlawful modification of licenses, for which the government would be liable in damages. See, e.g., Sprint Reply Comments, Docket No. 98-153, at 13-15 (Oct. 27, 2000); Sprint Ex Parte, Docket No. 98-153, at 7-8 (Feb. 21, 2001).

<sup>4</sup> See Dr. Jay Padgett, Senior Research Scientist, Telcordia Technologies, “A Model for Calculating the Effect of UWB Interference on a CDMA PCS System” (Sept. 12, 2000), *appended as Attachment 1* to the September 12, 2000 Sprint PCS and Time Domain letters; Dr. Jay Padgett, Senior Research Scientist, Telcordia Technologies, “Summary of Testing Performed by Sprint PCS and Time Domain to Characterize the Effect of Ultra Wideband (UWB) Devices on an IS-95 PCS System” (Sept. 12, 2000), *appended as Attachment 2* to the September 12, 2000 Sprint PCS and Time Domain letters. See also Sprint PCS Supplemental Comments, ET Docket No. 98-153 (Oct. 6, 2000).

<sup>5</sup> See *UWB NPRM*, ET Docket No. 98-153, FCC 00-163, 15 FCC Rcd 12086 (May 11, 2000).

<sup>6</sup> As an example, using the more stringent  $-53.2$  dBm/MHz average power level, a medium sized city (200 cell sites), and a significant distribution of UWB devices, Sprint PCS would be able to serve from 250 to 1,000 fewer customers at times during the busy hour — *solely as a result of UWB interference*.

rates increase to 2.0% and 7.9% respectively. To put these figures into perspective, Sprint PCS spends tens of millions of dollars each year adding “capacity” cell sites to reduce its call blockage rate by one percent. Sprint PCS would thus have to spend enormous sums in an attempt to overcome the significant call blockage that it would encounter as a result of new UWB interference.

Importantly, not one UWB proponent (including Fantasma) has challenged the data and model that Sprint PCS and Time Domain submitted, and none has challenged the fact that UWB devices will cause harmful interference to CDMA networks. They rather claim, without reciting any facts, that the instances where this interference will occur should be small.<sup>7</sup> Sprint PCS has previously addressed this claim, and it will not repeat this discussion here.<sup>8</sup> Suffice it to say here that Fantasma and other UWB proponents have not begun to meet their “burden of demonstrating that there is no potential for interference.”<sup>9</sup>

It bears emphasis that Sprint PCS is not alone in its views. For example:

- Qualcomm, the CDMA patent holder, independently reached the same conclusion as Sprint PCS, and Qualcomm has submitted its analysis in the record in this proceeding.<sup>10</sup>
- The NTIA, following its own, independent study, has concluded that the operation of UWB devices below 3.1 GHz “will be challenging.”<sup>11</sup>
- Several UWB proponents readily acknowledge that UWB devices should not be permitted in the spectrum bands below 3.1 GHz. For example, Multispectral Solutions (“MSSI”), which has over a decade of experience in developing UWB technologies, recognizes that UWB

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<sup>7</sup> See, e.g., Fantasma Reply Comments on NTIA Non-GPS Compatibility Study, Docket No. 98-153, at 3 (March 12, 2001).

<sup>8</sup> See Sprint PCS *Ex Parte*, Docket No. 98-153 (Feb. 21, 2001). The interference risk of UWB devices could actually be more severe than what Sprint PCS anticipates. See, e.g., D.J. Caera, Aerospace Online, “Ultra Wide Band Radio — Miracle or Menace?” (Jan., 31, 2001)(“[E]ach of us could come to depend on as many as eight separate UWB devices in our personal lives.”).

<sup>9</sup> *New Channels Communications*, 57 F.R.2d 1600 ¶ 6 (1985). See also *Industrial Communications*, 6 FCC Rcd 264, 265 ¶ 12 (1990)(“It is the burden of the applicant to demonstrate interference-free operation.”); *Waynesboro Broadcasting*, 1 F.C.C.2d 431, 432-33 ¶ 3 (1965)(“[T]he burden of proof is upon the applicants to show that interference will not be cause to [existing] installations by their proposals.”).

<sup>10</sup> See Qualcomm *Ex Parte*, Docket No. 98-153 (March 8, 2001).

<sup>11</sup> NTIA Report, “Assessment of Compatibility Between Ultrawideband Devices and Selected Federal Systems,” NTIA Special Publication 01-43, Docket No. 98-153, at x (Jan. 2001).

will cause “significant” interference to PCS networks, and it accordingly recommends that unlicensed UWB devices not be permitted to operate in the frequency range below 3.1 GHz.<sup>12</sup>

Unfortunately, while some UWB advocates have claimed that UWB operates in the “garbage band” and can superimpose its emissions on existing services without interference thereby “creating spectrum,” such statements are without basis in fact and, in fact, have shown to be false.<sup>13</sup>

It may be appropriate for the Commission to consider use of UWB devices in the spectrum bands above 3.0 GHz, as some UWB proponents have recommended.<sup>14</sup> But based on the undisputed record evidence, the conclusion is inescapable that the Commission must reject use of UWB on the PCS band and any other band where CDMA will be used in the provision of mobile services — including 3G technologies.

Fantasma and certain other UWB proponents advocate a rather novel public policy position. They not only want to use Sprint PCS’ spectrum for free to provide telecommunications services in competition with Sprint PCS’ services, but they also expect Sprint PCS to spend additional millions in modifying its network in an attempt to accommodate their use of its spectrum!

Sprint PCS submits that the Commission does not have the legal right to convert its exclusive licenses into non-exclusive licenses that it must now share with new competitors. The Commission need not reach this legal issue, however, because given the UWB’s community’s concession that UWB devices will interfere with Sprint PCS’ net-

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<sup>12</sup> See MSSSI Reply Comments, Docket No. 98-153, at 1-2 (Oct. 27, 2000). See also *id.* at 3 (“While higher frequency operation may require some additional engineering effort [for UWB devices] it is a far better alternative than interference to safety-of-life and other key commercial spectrum users.”).

<sup>13</sup> See MSSSI Comments, Docket No. 98-154, at 10-12 (Sept. 12, 2000). See also *id.* at 1 (Unfiltered UWB systems “should not be permitted under Part 15,” and filtered systems should initially be permitted only “above 3.1 GHz.”); at 13 (“[T]here is no compelling reason to operate below 3.1 GHz for the types of applications contemplated for UWB communications and radar.”).

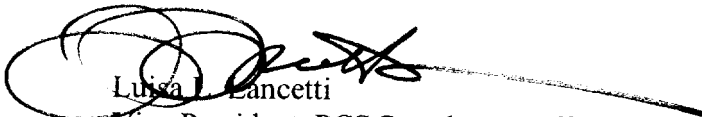
<sup>14</sup> See, e.g., MSSSI Reply Comments, Docket No. 98-154 (Feb. 22, 2001); MSSSI Reply Comments, Docket No. 98-153 (March 6, 2001).

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April 6, 2001  
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work, UWB proponents have not, and cannot as a matter of law, satisfy their burden of demonstrating that there is "no potential for interference."<sup>15</sup>

Respectfully submitted,

**Sprint Spectrum L.P., d/b/a Sprint PCS**

  
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<sup>15</sup> *New Channels Communications*, 57 F.R.2d 1600 ¶ 6 (1985).